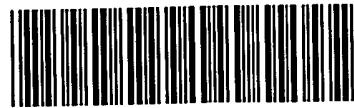


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RAW SEQUENCE LISTING DATE: 08/09/2002
PATENT APPLICATION: US/10/086,542A TIME: 15:49:57

Input Set : N:\Crf3\RULE60\10086542A.RAW
Output Set: N:\CRF4\08092002\J086542A.raw

SEQUENCE LISTING

3 (1) GENERAL INFORMATION:

5 (i) APPLICANT: Wahl, Geoffrey M
6 O'Gorman, Stephen V
8 (ii) TITLE OF INVENTION: FLP-MEDIATED GENE MODIFICATION IN
9 MAMMALIAN CELLS, AND COMPOSITIONS AND CELLS USEFUL
10 THEREFOR

12 (iii) NUMBER OF SEQUENCES: 4

14 (iv) CORRESPONDENCE ADDRESS:

15 (A) ADDRESSEE: Pretty, Schroeder, Brueggemann & Clark
16 (B) STREET: 444 South Flower Street, Suite 2000
17 (C) CITY: Los Angeles
18 (D) STATE: California
19 (E) COUNTRY: USA
20 (F) ZIP: 90071

22 (v) COMPUTER READABLE FORM:

23 (A) MEDIUM TYPE: Floppy disk
24 (B) COMPUTER: IBM PC compatible
25 (C) OPERATING SYSTEM: PC-DOS/MS-DOS
26 (D) SOFTWARE: PatentIn Release #1.0, Version #1.25

28 (vi) CURRENT APPLICATION DATA:

29 (A) APPLICATION NUMBER: US/10/086,542A
30 (B) FILING DATE: 28-Feb-2002
31 (C) CLASSIFICATION:

34 (vii) PRIOR APPLICATION DATA:

35 (A) APPLICATION NUMBER: US/08/484,324
36 (B) FILING DATE: 07-JUN-1995

39 (viii) ATTORNEY/AGENT INFORMATION:

40 (A) NAME: Reiter, Stephen E
41 (B) REGISTRATION NUMBER: 31,192
42 (C) REFERENCE/DOCKET NUMBER: P41 9984

44 (ix) TELECOMMUNICATION INFORMATION:

45 (A) TELEPHONE: (619) 546-4737
46 (B) TELEFAX: (619) 546-9392

49 (2) INFORMATION FOR SEQ ID NO: 1:

51 (i) SEQUENCE CHARACTERISTICS:

52 (A) LENGTH: 1380 base pairs
53 (B) TYPE: nucleic acid
54 (C) STRANDEDNESS: single
55 (D) TOPOLOGY: linear

57 (ii) MOLECULE TYPE: DNA (genomic)

60 (vii) IMMEDIATE SOURCE:

61 (B) CLONE: NATIVE FLP

ENTERED

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/086,542A

DATE: 08/09/2002
TIME: 15:49:58

Input Set : N:\Crf3\RULE60\10086542A.RAW
Output Set: N:\CRF4\08092002\J086542A.raw

63 (ix) FEATURE:
 64 (A) NAME/KEY: CDS
 65 (B) LOCATION: 1..1269
 68 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1: 48
 70 ATG CCA CAA TTT GAT ATA TTA TGT AAA ACA CCA CCT AAG GTG CTT GTT
 71 Met Pro Gln Phe Asp Ile Leu Cys Lys Thr Pro Pro Lys Val Leu Val
 72 1 5 10 15
 74 CGT CAG TTT GTG GAA AGG TTT GAA AGA CCT TCA GGT GAG AAA ATA GCA 96
 75 Arg Gln Phe Val Glu Arg Phe Ser Gly Glu Lys Ile Ala
 76 20 25 30
 78 TTA TGT GCT GCT GAA CTA ACC TAT TTA TGT TGG ATG ATT ACA CAT AAC 144
 79 Leu Cys Ala Ala Glu Leu Thr Tyr Leu Cys Trp Met Ile Thr His Asn
 80 35 40 45
 82 GGA ACA GCA ATC AAG AGA GCC ACA TTC ATG AGC TAT AAT ACT ATC ATA 192
 83 Gly Thr Ala Ile Lys Arg Ala Thr Phe Met Ser Tyr Asn Thr Ile Ile
 84 50 55 60
 86 AGC AAT TCG CTG AGT TTC GAT ATT GTC AAT AAA TCA CTC CAG TTT AAA 240
 87 Ser Asn Ser Leu Ser Phe Asp Ile Val Asn Lys Ser Leu Gln Phe Lys
 88 65 70 75 80
 90 TAC AAG ACG CAA AAA GCA ACA ATT CTG GAA GCC TCA TTA AAG AAA TTG 288
 91 Tyr Lys Thr Gln Lys Ala Thr Ile Leu Glu Ala Ser Leu Lys Lys Leu
 92 85 90 95
 94 ATT CCT GCT TGG GAA TTT ACA ATT ATT CCT TAC TAT GGA CAA AAA CAT 336
 95 Ile Pro Ala Trp Glu Phe Thr Ile Ile Pro Tyr Tyr Gly Gln Lys His
 96 100 105 110
 98 CAA TCT GAT ATC ACT GAT ATT GTA AGT TTG CAA TTA CAG TTC GAA 384
 99 Gln Ser Asp Ile Thr Asp Ile Val Ser Ser Leu Gln Leu Gln Phe Glu
 100 115 120 125
 102 TCA TCG GAA GCA GAT AAG GGA AAT AGC CAC AGT AAA AAA ATG CTT 432
 103 Ser Ser Glu Glu Ala Asp Lys Gly Asn Ser His Ser Lys Lys Met Leu
 104 130 135 140
 106 AAA GCA CTT CTA AGT GAG GGT GAA AGC ATC TGG GAG ATC ACT GAG AAA 480
 107 Lys Ala Leu Leu Ser Glu Gly Glu Ser Ile Trp Glu Ile Thr Glu Lys
 108 145 150 155 160
 110 ATA CTA AAT TCG TTT GAG TAT ACT TCG AGA TTT ACA AAA ACA AAA ACT 528
 111 Ile Leu Asn Ser Phe Glu Tyr Thr Ser Arg Phe Thr Lys Thr Lys Thr
 112 165 170 175
 114 TTA TAC CAA TTC CTC CTA GCT ACT TTC ATC AAT TGT GGA AGA TTC 576
 115 Leu Tyr Gln Phe Leu Phe Leu Ala Thr Phe Ile Asn Cys Gly Arg Phe
 116 180 185 190
 118 AGC GAT ATT AAG AAC GTT GAT CCG AAA TCA TTT AAA TTA GTC CAA AAT 624
 119 Ser Asp Ile Lys Asn Val Asp Pro Lys Ser Phe Lys Leu Val Gln Asn
 120 195 200 205
 122 AAG TAT CTG GGA GTA ATA ATC CAG TGT TTA GTG ACA GAG ACA AAG ACA 672
 123 Lys Tyr Leu Gly Val Ile Ile Gln Cys Leu Val Thr Glu Thr Lys Thr
 124 210 215 220
 126 AGC GTT AGT AGG CAC ATA TAC TTC TTT AGC GCA AGG GGT AGG ATC GAT 720
 127 Ser Val Ser Arg His Ile Tyr Phe Phe Ser Ala Arg Gly Arg Ile Asp
 128 225 230 235 240

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Input Set : N:\Crf3\RULE60\10086542A.RAW
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130	CCA CTT GTA TAT TTG GAT GAA TTT TTG AGG AAT TCT GAA CCA GTC CTA	768
131	Pro Leu Val Tyr Leu Asp Glu Phe Leu Arg Asn Ser Glu Pro Val Leu	
132	245 250 255	
134	AAA CGA GTA AAT AGG ACC GGC AAT TCT TCA AGC AAT AAA CAG GAA TAC	816
135	Lys Arg Val Asn Arg Thr Gly Asn Ser Ser Ser Asn Lys Gln Glu Tyr	
136	260 265 270	
138	CAA TTA TTA AAA GAT AAC TTA GTC AGA TCG TAC AAT AAA GCT TTG AAG	864
139	Gln Leu Leu Lys Asp Asn Leu Val Arg Ser Tyr Asn Lys Ala Leu Lys	
140	275 280 285	
142	AAA AAT GCG CCT TAT TCA ATC TTT GCT ATA AAA AAT GGC CCA AAA TCT	912
143	Lys Asn Ala Pro Tyr Ser Ile Phe Ala Ile Lys Asn Gly Pro Lys Ser	
144	290 295 300	
146	CAC ATT GGA AGA CAT TTG ATG ACC TCA TTT CTT TCA ATG AAG GGC CTA	960
147	His Ile Gly Arg His Leu Met Thr Ser Phe Leu Ser Met Lys Gly Leu	
148	305 310 315 320	
150	ACG GAG TTG ACT AAT GTT GTG GGA AAT TGG AGC GAT AAG CGT GCT TCT	1008
151	Thr Glu Leu Thr Asn Val Val Gly Asn Trp Ser Asp Lys Arg Ala Ser	
152	325 330 335	
154	GCC GTG GCC AGG ACA ACG TAT ACT CAT CAG ATA ACA GCA ATA CCT GAT	1056
155	Ala Val Ala Arg Thr Thr Tyr His Gln Ile Thr Ala Ile Pro Asp	
156	340 345 350	
158	CAC TAC TTC GCA CTA GTT TCT CGG TAC TAT GCA TAT GAT CCA ATA TCA	1104
159	His Tyr Phe Ala Leu Val Ser Arg Tyr Tyr Ala Tyr Asp Pro Ile Ser	
160	355 360 365	
162	AAG GAA ATG ATA GCA TTG AAG GAT GAG ACT AAT CCA ATT GAG GAG TGG	1152
163	Lys Glu Met Ile Ala Leu Lys Asp Glu Thr Asn Pro Ile Glu Glu Trp	
164	370 375 380	
166	CAG CAT ATA GAA CAG CTA AAG GGT AGT GCT GAA GGA AGC ATA CGA TAC	1200
167	Gln His Ile Glu Gln Leu Lys Gly Ser Ala Glu Gly Ser Ile Arg Tyr	
168	385 390 395 400	
170	CCC GCA TGG ATT GGG ATA ATA TCA CAG GAG GTA CTA GAC TAC CTT TCA	1248
171	Pro Ala Trp Ile Gly Ile Ile Ser Gln Glu Val Leu Asp Tyr Leu Ser	
172	405 410 415	
174	TCC TAC ATA AAT AGA CGC ATA TAAGTACGCA TTTAACGCATA AACACGCACT	1299
175	Ser Tyr Ile Asn Arg Arg Ile	
176	420	
178	ATCCCGTTCT TCTCATGTAT ATATATATAC AGGCAACACG CAGATATAGG TGCGACGTGA	1359
180	ACAGTGAGCT GTATGTGCGC A	1380
183	(2) INFORMATION FOR SEQ ID NO: 2:	
185	(i) SEQUENCE CHARACTERISTICS:	
186	(A) LENGTH: 423 amino acids	
187	(B) TYPE: amino acid	
188	(D) TOPOLOGY: linear	
190	(ii) MOLECULE TYPE: protein	
192	(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:	
194	Met Pro Gln Phe Asp Ile Leu Cys Lys Thr Pro Pro Lys Val Leu Val	
195	1 5 10 15	
197	Arg Gln Phe Val Glu Arg Phe Glu Arg Pro Ser Gly Glu Lys Ile Ala	
198	20 25 30	

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/086,542A

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Input Set : N:\Crf3\RULE60\10086542A.RAW
Output Set: N:\CRF4\08092002\J086542A.raw

200 Leu Cys Ala Ala Glu Leu Thr Tyr Leu Cys Trp Met Ile Thr His Asn
 201 35 40 45
 203 Gly Thr Ala Ile Lys Arg Ala Thr Phe Met Ser Tyr Asn Thr Ile Ile
 204 50 55 60
 206 Ser Asn Ser Leu Ser Phe Asp Ile Val Asn Lys Ser Leu Gln Phe Lys
 207 65 70 75 80
 209 Tyr Lys Thr Gln Lys Ala Thr Ile Leu Glu Ala Ser Leu Lys Lys Leu
 210 85 90 95
 212 Ile Pro Ala Trp Glu Phe Thr Ile Ile Pro Tyr Tyr Gly Gln Lys His
 213 100 105 110
 215 Gln Ser Asp Ile Thr Asp Ile Val Ser Ser Leu Gln Leu Gln Phe Glu
 216 115 120 125
 218 Ser Ser Glu Glu Ala Asp Lys Gly Asn Ser His Ser Lys Lys Met Leu
 219 130 135 140
 221 Lys Ala Leu Leu Ser Glu Gly Glu Ser Ile Trp Glu Ile Thr Glu Lys
 222 145 150 155 160
 224 Ile Leu Asn Ser Phe Glu Tyr Thr Ser Arg Phe Thr Lys Thr Lys Thr
 225 165 170 175
 227 Leu Tyr Gln Phe Leu Phe Leu Ala Thr Phe Ile Asn Cys Gly Arg Phe
 228 180 185 190
 230 Ser Asp Ile Lys Asn Val Asp Pro Lys Ser Phe Lys Leu Val Gln Asn
 231 195 200 205
 233 Lys Tyr Leu Gly Val Ile Ile Gln Cys Leu Val Thr Glu Thr Lys Thr
 234 210 215 220
 236 Ser Val Ser Arg His Ile Tyr Phe Phe Ser Ala Arg Gly Arg Ile Asp
 237 225 230 235 240
 239 Pro Leu Val Tyr Leu Asp Glu Phe Leu Arg Asn Ser Glu Pro Val Leu
 240 245 250 255
 242 Lys Arg Val Asn Arg Thr Gly Asn Ser Ser Ser Asn Lys Gln Glu Tyr
 243 260 265 270
 245 Gln Leu Leu Lys Asp Asn Leu Val Arg Ser Tyr Asn Lys Ala Leu Lys
 246 275 280 285
 248 Lys Asn Ala Pro Tyr Ser Ile Phe Ala Ile Lys Asn Gly Pro Lys Ser
 249 290 295 300
 251 His Ile Gly Arg His Leu Met Thr Ser Phe Leu Ser Met Lys Gly Leu
 252 305 310 315 320
 254 Thr Glu Leu Thr Asn Val Val Gly Asn Trp Ser Asp Lys Arg Ala Ser
 255 325 330 335
 257 Ala Val Ala Arg Thr Thr Tyr Thr His Gln Ile Thr Ala Ile Pro Asp
 258 340 345 350
 260 His Tyr Phe Ala Leu Val Ser Arg Tyr Tyr Ala Tyr Asp Pro Ile Ser
 261 355 360 365
 263 Lys Glu Met Ile Ala Leu Lys Asp Glu Thr Asn Pro Ile Glu Glu Trp
 264 370 375 380
 266 Gln His Ile Glu Gln Leu Lys Gly Ser Ala Glu Gly Ser Ile Arg Tyr
 267 385 390 395 400
 269 Pro Ala Trp Ile Gly Ile Ile Ser Gln Glu Val Leu Asp Tyr Leu Ser
 270 405 410 415
 272 Ser Tyr Ile Asn Arg Arg Ile

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Input Set : N:\Crf3\RULE60\10086542A.RAW
Output Set: N:\CRF4\08092002\J086542A.raw

273 420
275 (2) INFORMATION FOR SEQ ID NO: 3:
277 (i) SEQUENCE CHARACTERISTICS:
278 (A) LENGTH: 34 base pairs
279 (B) TYPE: nucleic acid
280 (C) STRANDEDNESS: single
281 (D) TOPOLOGY: linear
283 (ii) MOLECULE TYPE: DNA (genomic)
287 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
289 GAAGTTCTTA TTCTCTAGAA AGTATAGGAA CTTC 34
291 (2) INFORMATION FOR SEQ ID NO: 4:
293 (i) SEQUENCE CHARACTERISTICS:
294 (A) LENGTH: 68 base pairs
295 (B) TYPE: nucleic acid
296 (C) STRANDEDNESS: single
297 (D) TOPOLOGY: linear
299 (ii) MOLECULE TYPE: DNA (genomic)
303 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
305 GATCCCGGGC TACCATGGAG AAGTTCTAT TCCGAAGTTC CTATTCTCTA GAAAGTATAG 60
307 GAACTTCA 68

VERIFICATION SUMMARY
PATENT APPLICATION: US/10/086,542A

DATE: 08/09/2002
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Output Set: N:\CRF4\08092002\J086542A.raw

L:29 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:30 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]